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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/718,351	11/21/2003	Deon John Potgieter	LMOL01-0004	9879

33213 7590 03/15/2006

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EXAMINER	
BASICHAS, ALFRED	
ART UNIT	**PAPER NUMBER**
3749	

DATE MAILED: 03/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/718,351	POTGIETER ET AL.	
	Examiner	Art Unit	
	Alfred Basichas	3749	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 July 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7,9-12 and 21-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,9,11,12 and 21-23* is/are rejected.

7)☒ Claim(s) *7,10 and 24-26* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Invention I in the reply filed on June 21, 2006, is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 5, 9, 11, 12, and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Houseman (3,982,910), which shows all of the claimed limitations. Houseman shows, among other things, a method of combustion including establishing a combustion zone 56 spaced from a fuel nozzle and defined by a flame of ignited hydrogen (see at least fig. 5), dispersing a liquid primary fuel through the nozzle into the

zone of combustion in a partially vaporized and atomized state (see at least col. 2, lines 12-23, and fig. 6), and burning the vaporized and atomized liquid primary fuel entering the zone of combustion. Houseman further shows rotating the hydrogen flame (see at least fig. 6) with discharge openings radially spaced from the longitudinal axis and angled toward the central axis, wherein the combustion zone is defined by a conical surface symmetric about the longitudinal axis (see at least fig. 5,6), and wherein water or steam is added and mixed with the fuel to reduce soot (see at least the Background section).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 3, 4, 6, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Houseman (3,982,910), which discloses substantially all of the claimed limitations. Nevertheless, Houseman does not specifically recite the claimed speed and range. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have incorporated the claimed speed and range into the invention disclosed by Houseman, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable values and ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

8. Claim 23 isrejected under 35 U.S.C. 103(a) as being unpatentable over Houseman (3,982,910), which discloses substantially all of the claimed limitations. Nevertheless, Houseman does not specifically recite the use of electrolysis of water as a source for hydrogen and oxygen. Official Notice is given that electrolysis of water as a source for hydrogen and oxygen is old and well known in the art. Such an arrangement has the clear and obvious benefit of providing for a practically unlimited supply of the gasses. As water is relatively plentiful, electrolysis of water to separate the hydrogen and oxygen molecules found in H2O is one of the most prevalent and

convenient sources of the components necessary in hydrogen fuel cell technology. Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate electrolysis of water as a source for hydrogen and oxygen into the invention disclosed by Housemen, so as to provide for a plentiful supply of Hydrogen and Oxygen.

Allowable Subject Matter

9. Claims 7, 10, and 24-26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

10. Applicants' arguments with regard to the rejected claims, filed October 17, 2005,, have been considered, but are not deemed fully persuasive.

a. As regards claim 1, applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., two separate and distinct combustion events) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). In addition, applicant's arguments involving the "hydrogen flame" is not distinguished from a flame containing hydrogen.

b. As regards claim 2, applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "pressurized external" and "intended product") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

c. As regards claim 3, the term "setting a speed" to "optimize" are extremely broad and inherent terms. A speed is always set, even if it is set to be variable, and optimization is an inherent goal of every inventor, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable values or ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233; *In re Swain,* 156.

d. As regards claim 4, the term "predetermined mixture" is extremely broad and inherent, as it is a basic principle of engineering that any fuel mixture is predetermined based on the device which uses it and the design parameters under which it functions.

e. As regards claim 5, applicant asserts that the prior art does not show the discharge opening angled toward the central axis of rotation. This is simply incorrect, as Houseman clearly shows just that (see at least fig. 6) and is clearly reflected by the flow path 74.

f. As regards claims 11 and 12, water and premixing are clearly discussed in at least col. 5, lines 13-20.

g. As regards claim 21, a conical surface is clearly shown in at least fig. 10.

h. As regards claims 22 and 23, the examiner's assertion of Official Notice is taken to be admitted prior art in view of applicants' non-traversal of the assertion. MPEP 2144.03. The examiner appreciates applicants' waiver and efforts to expedite prosecution of the instant invention by avoiding unnecessary deliberations of well known aspects of the art.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

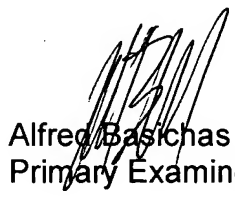
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alfred Basichas whose telephone number is 571 272 4871. The examiner can normally be reached on Monday through Friday during regular business hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ehud Gartenberg can be reached on 571 272 4828. The fax phone numbers for the organization where this application or proceeding is assigned are 703 872 9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Tech Center telephone number is 571 272 3700.

March 7, 2006



Alfred Basichas
Primary Examiner